EFL Students in the Desert: Using Survival Simulations to Improve Teamwork

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Abstract

In this paper, a group of 12 Japanese advanced-level EFL learners (*n*=12) participated in a survival simulation activity known as the Desert Survival Situation (DSS). This exploratory research aims to understand the impact of several interpersonal factors that were perceived by the participants to either enhance or diminish group performance. To that end, the participants reflected on their own and each other's performance during the consensus-building discussion phase of the DSS and completed a two-part written feedback survey that included: 1) eight closed-ended items that used a 4-point Likert scale, and 2) five open-ended questions. The quantitative and qualitative results from responses showed that participants had strongly favorable impressions of their own and each other's interpersonal skills used to form consensus in the DSS. Suggestions for future research based on this initial study are also offered.

Introduction

Imagine for a moment the following scenario. You and three other passengers are the only survivors after crash-landing in a small plane in the Sonoran Desert in the U.S. You are all uninjured and prior to crashing the pilot had mentioned that you were approximately 110 kilometers away from the nearest habitation, which is a mining camp. The area around you is flat and relatively barren. It is mid-August at around 10: 00 am and the temperature is expected to rise to well over 40 degrees Celsius. You have no mobile devices. You have been able to salvage 15 assorted items from the wreckage (see Appendix 1). Your task now is to decide together

the best strategy for survival. You must first decide whether to stay at the crash site or leave in order to get help. You must also rank the 15 items in their order of importance to assist in your survival. The clock is ticking... .

The above scenario is a condensed version from the Human Synergistics International (herein: HSI) "Desert Survival Situation™ Participant's Booklet" (2015) and serves to provide a contextualized representation of what was presented to a group of 12 Japanese advanced-level EFL learners who voluntarily participated in this project. This exploratory research focuses on understanding the extent to which interpersonal factors are deemed by participants to either enhance or diminish group performance while building consensus in the Desert Survival Situation (DSS). [Note: the DSS was adapted from the original Desert Survival Problem by Lafferty and Eady (1974)].

The paper begins with the background to the study that includes research relevant to survival simulations and group decision making. Then the methodology is presented specific to the participants, the DSS activity steps and procedure that was used, and the survey that was given. Next, the results from the survey are shown in both quantitative and qualitative form. Finally, the main findings are provided in the discussion and conclusions along with suggestions for future research.

Background

What is a simulation? Ukens and Richter (2009) offer the following definition: "a simulation is a contrived situation that contains enough reality to induce a real-world response by those participating in the event. This simulated environment requires the participant to 'play' a role, which produces certain actions and behaviors that can be compared to real-life situations" (p. 207). Regarding problem solving simulations, Szumal (2000) says that they "require participants to rank a list of items or sequence a set of activities according to some objective... . and then compare their individual and team solutions to an expert or recommended one" (p. 1). Lafferty and Eady (1974) designed the original DSS to demonstrate a number of important factors including: teamwork, participative decision making, and synergy - in other words, the potential for groups to outperform their individual members. The DSS, and other similar simulations, have been used for various

other purposes, or objectives, as well including as ice-breakers, team builders, and to improve particular skills such as problem solving.

Szumal (2000) stresses the importance of identifying the most appropriate simulation type for the objectives being pursued and has consequently identified two major simulations as follows: 1) *content-free*, and 2) *content-full*. In *content-free* simulations, it is assumed that participants have no real life experience that could influence their ability to solve problems within such simulations. To illustrate, it could be assumed that the average person hasn't traveled to the moon before. Thus, a simulation requiring such a person to solve problems dealing with a context involving the moon would be considered *content-free*. Survival simulations, such as the DSS, are of this type and aim to direct participant's attention to individual and group problem-solving processes and skills. On the other hand, *content-full* simulations provide participants with actual problems that are more likely to be experienced in practical contexts, such as working environments. For example, a simulation on how to handle disruptive students in a teacher-training program would be considered *content-full*. The participants would be learning skills and experiencing ways to practically handle the particular situations arising with such students in this simulation. The DSS, which is a *content-free* simulation, was chosen for this research specifically for its focus on group problem-solving skills in general and, as will be shown later, interpersonal skills in particular.

HSI (2013) suggest that the DSS can provide "an opportunity for participants to identify, analyze, and develop the skills, processes, and styles that influence (a) group's ability to achieve synergy and identify effective solutions" (p. 28). To that end, they have developed a model whereby "Effective Solutions=Quality x Acceptance." Quality represents the rational skills and processes involved in synergistic problem solving. Acceptance largely refers to the interpersonal skills that are involved in interacting with others towards the goal of achieving effective solutions. More specifically, within this model interpersonal skills include the main sub-categories of: listening, supporting, differing, participating, and striving to build the consensus necessary to solve the simulation problem being addressed (HIS, 2013). It is important to understand the ways that interpersonal skills can either enhance or diminish group interaction in teamwork. Szumal (2000) has commented that: "Strong interpersonal skills are apparent in groups where all members participate in the discussion, listen to one another, constructively differ,

and offer mutual support" (p. 10). Fundamental to any simulation is the debriefing that occurs afterwards which allows the participants to process the experience and draw conclusions to help them to connect the experience to their lives in meaningful ways (see Ukens & Richter, 2009). It is not always easy for participants to do so, however. To illustrate, Hodder (2001) used a simulation on earthquakes developed by Fisher and Peters (1990) and found that participants struggled to assess the value of their own contributions to the groups within which they participated. He concluded that a greater emphasis on explaining the potential benefits of the simulation and the results achieved by participants is necessary in order for them to perceive more value in the simulation. Participants may also benefit from a more narrow focus on isolated items, such as interpersonal skills, and more direction with respect to being provided with focused questions when reflecting. Ukens and Richter (2009) say that the rank-order, team-consensus type of simulation is a useful means to assess two main areas: 1) the process, and 2) the content. They further distinguish the processes used in problem solving within the simulation as either *task-oriented* or *relationship-oriented*. The former are more concerned with the more rational, or logical, processes used to complete a task. The latter emphasize the ways that participants function interpersonally to achieve the task. This study focused on the interpersonal skills, which fit within the *relationship-oriented* process, used by the participants to negotiate meaning during the consensus-building phase of the DSS.

Method

Participants

The study was conducted with 12 Japanese EFL participants (P1～P12) who regularly attend an advanced English discussion class at a Community College at a private university in Aichi prefecture. They all volunteered to participate outside of their regularly scheduled class time and did so anonymously. The participants ranged in age from approximately 35 to 70 and included 10 females and two males. The majority held full-time jobs and also included two housewives and one retiree. Their TOEIC scores ranged from 750, at the low end, to 990, which was achieved by one member, at the high end.

DSS activity steps

In order to help the reader to understand the DSS simulation more fully, the activity steps that were used with the participants are offered herein. The specific steps that were included were as follows:

1. Introduced the DSS;
2. Individual ranking completed (Step 1);
3. Organized teams;
4. Team ranking completed (Step 2);
5. Provided the expert ranking and debriefing (Step 3);
6. Individual scores calculated (Step 4=Step 3-Step 1);
7. Group scores calculated (Step 5=Step 3-Step 2);
8. Feedback survey distributed and completed; and
9. Discussed the implications of the experience.

First, the participants were introduced to the DSS through viewing a DSS DVD Enhancement which outlined the important details of the situation itself and explained the task of ranking each of the 15 items according to their importance for survival. The participants were then given time to clarify any content questions related to the situation and the items that needed to be ranked. Next, they were instructed to individually rank the items (Step 1) from 1 (most important) to 15 (least important) within a timeframe of 15 minutes. Then they were randomly organized into three teams of four members each and were given their task to work together to form a consensus to once again rank the 15 items (Step 2). They were instructed to act as if they were the actual group of crash survivors in the simulation situation. In accordance with Szumal's advice (2000), the participants were encouraged to be themselves, avoid role playing, and work towards reaching consensus without using strategies such as trading off, voting, or other majority-rule methods. A timeframe of 35 minutes was originally set, but in one case an extra five minutes was granted to complete the activity. All groups were separated into different rooms in order to complete the activity so as not to influence each other's decisions. Afterwards, they all returned to the original room and watched the DSS DVD Enhancement, which provided the expert ranking (Step 3) and rationale for the ranking of each item. Following this step, the participants calculated their individual and team scores (Steps 4 and 5). Table 1 provides a graphical representation of Steps 1～5 used for calculating scores.

Table 1 Score calculation steps

Step 1	Step 2	Step 3	Step 4	Step 5
Individual item ranking	Team item ranking	Expert item ranking	Individual score= Step 3-Step 1	Team score= Step 3-Step 2

Also included here are the following calculated results: average individual score, team score, gain (loss) score, best member's score, and worst member's score (Table 2).

Table 2 Simulation team scores for groups 1～3

	Team 1	Team 2	Team 3
Average individual score	55.8	75.5	51
Team score	50	72	40
Gain (loss) score	5.8	3.5	11
Best member's score	50	60	40
Worst member's score	70	90	70

The average individual score was calculated based on the sum of each team's individual scores divided by four which represented the number of members on each team. Individual scores and team scores were calculated according to the process already described in Step 4 and Step 5 in Table 1. The gain (loss) score was the difference between the average individual score less the team score. The best member's score and worst member's score were specific to those in each of the three teams, respectively.

A written feedback survey (see Appendix 2) on the experience was later distributed. After completing the survey, participants then reflected on their experience within their respective groups on a set of focused discussion questions. These reflection questions pertained to the logical and interpersonal communication skills that were demonstrated during group discussion. Finally, key insights from their discussion were shared in a group-wide wrap-up discussion.

Procedure

This research was concerned with the interpersonal skills demonstrated by participants during the discussion phase of the DSS. In particular, the interpersonal sub-categories of listening, supporting, differing, and participating within the Effective Solutions model (HIS, 2013) were considered as teams worked towards forming consensus. Specifically, participants were asked to first indicate on a 4-point Likert scale the extent to which they felt that these interpersonal sub-categories were effectively demonstrated by: 1) themselves, and 2) others in their group according to eight closed-ended items (see Part A of Appendix 2). The interpersonal skills were tallied based on the 4-point Likert scale as follows: strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD). The results were calculated on a descending scale from four points to one point given such that: SA=4, A=3, D=2, and SD=1. Averages were then calculated by taking the sum total of each participant's response per item and dividing it by 12, which represented the total number of participants. The odd items (#1, 3, 5, and 7) represented participant impressions of their own interpersonal skills demonstrated during the DSS. The even items (#2, 4, 6, and 8), represented participant impressions of the other group member's participation. In addition, they were asked to give written responses to five open-ended questions (see Part B of Appendix 2) specific to their perceptions of what they excelled at from their own and each other's performance during group discussion. These responses were then coded using open-coding in order to uncover relevant themes specific to each question.

Results

The results for the survey items are shown below. First, the results for the eight closed-ended items specific to interpersonal skills are given (see Table 3). Next, the results from the five open-ended questions are shown in the form of major themes that emerged from open-coding. Participant examples from their written feedback are offered to illustrate each theme in greater detail.

The results for the eight closed-ended items were as follows:

Table 3 Self and other interpersonal skills assessment for closed-ended survey items

Item #	Score
1. I listened carefully to others during the group discussion.	3.6
2. Other members listened carefully during the group discussion.	3.4
3. I supported others by respecting their ideas and viewpoints during the group discussion.	3.5
4. Others were supportive by respecting other ideas and viewpoints during the group discussion.	3.4
5. I disagreed with others respectfully during the group discussion.	3.3
6. Others disagreed respectfully during the group discussion.	3.3
7. I participated equally in the group discussion without dominating.	3.3
8. Others participated equally in the group discussion without dominating.	3.4

As can be seen from the table, all areas were favorably assessed at an average between "agree", or "3", and "strongly agree", or "4" for each of the respective answers given for all items. In addition, there were no great differences given between participant's impressions of their own and each other's participation in the DSS. The greatest difference was ＋ 0.2 between items #1 and #2 which favored self over other assessment. The lowest difference was between items #5 and #6 at 0.0, or no difference. Other item differences found were between #3 and #4 at ＋ 0.1, and a -0.1 difference was found between items #7 and #8. Moreover, there were no great differences between the survey responses given between the collective items from #1～8 as a whole. The highest scored item, 3.6 for item #1, was only 0.3 points greater than the lowest evaluated items, which included both items #6 and #7 at 3.3. The median response for all eight items was 3.4.

Next, the results for the five open-ended questions will be shown (see Table 4 for a summary of the codes that emerged for each question).

Table 4 Theme codes for open-ended survey questions

Question #	Theme codes
1.	*Shared opinions, asked questions, listened, learned from others, disagreed respectfully*
2.	*Explained logically, talked more, expressed different views*
3.	*Shared opinions, listened, supported, lead*
4.	*Been active, been more persuasive*
5.	*Interesting, confidence, content, respect, flexibility, life connections, cooperation, negotiation, repeat activity*

Questions #1 and #2 are with respect to participant's impressions of their own participation during the DSS. Questions #3 and #4 indicate their impressions of the other members who participated in their DSS group. Finally, question #5 allowed participants to share additional feedback on the DSS that was not mentioned in the previous questions. The questions are offered below in order and include the codes, written in *italics*, that emerged together with illustrative participant quotes. The quotes for each of the 12 anonymous participants are expressed as P1～P12, accordingly.

1. What did you do well during the group discussion?

Participants most favorably self-assessed themselves under the following coded theme: *shared opinions*. To illustrate, P3 says, "*I expressed my opinion clearly.*" P10 offers a similar comment when mentioning: "*I participated in the discussion and expressed what I was thinking.*" Offering a slightly different interpretation is P4 as follows: "*I tried to explain my opinion without hesitation, though my vocabulary is poor.*" More than half of the participants, in fact, favorably self-assessed their ability with respect to *shared opinions*.

Less frequently mentioned themes included *asked questions*. P11 states this simply as, "*I tried asking questions.*" P8 comments on *listened* and *learned from others* as follows: "*I listened to several ideas and picked up some words that other members said.*" Another participant referred positively to note-taking as a skill that also fell under *learned from others*. On *disagreed respectfully*, P6 says, "*When I disagreed, I think I was*

polite and careful not to be too aggressive." These points show that participants were able to notice a variety of ways that they performed well during the group discussion.

2. What could <u>you</u> have done better during the group discussion?

Participants identified a number of ways that they could improve and the main area was coded as *explained logically*. For example, P5 says, "*I wish I could have more logical thinking to choose items.*" Similarly, P4 mentions, "*I should have explained more minutely and more logically.*" Half of the participants commented on this area.

Most of the other areas that were mentioned included a focus on ways to improve interacting with others in various ways. Under *talked more*, P11 says, "*I could have talked more and persuaded other members more*." P9, under *expressed different views*, mentions, "*I need to find different points of view to the ones I have now.*" Similar to this point is P7 who says, "*I need to get broader, useful views to communicate.*" The participants were able to discern a number of areas to improve their group discussion ability.

3. What did <u>other members</u> do well during the group discussion?

The most commonly mentioned point that participants perceived their peers doing well during group discussion fell under the coded heading of *shared opinions*. As an example, P6 says, "*When they expressed their opinions, they gave some examples.*" Similarly, P2 comments, "*They gave different opinions actively. Everyone speaks persuasively. I changed my mind after listening to their opinions.*" In addition, P10 says, "*They talked their opinions well and listened to others well.*" More than half of the participants commented on this area of *shared opinions*.

In addition to *listened*, which P10 mentions above, there were a number of other themes that emerged. Under *supported*, P3 says, "*They respected other's opinions by supporting their idea.*" Another form of *supported* is offered by P5 who says, "*They gave me persuasive ideas about the items.*" P9 mentions, "*One member wrote down the list in order we needed, and that helped us a lot to think about and decide the rank,*" which fell under the theme of *leaded*. The participants could identify a variety of ways that their peers could successfully perform during the group discussion.

4. What could other members have done better during the group discussion?

Been active was the most often mentioned theme for this question. Says P11, "*They could have discussed more aggressively.*" The same idea is commented on by P1 with reference to one group member as follows: "*I think the members have done well, but one of the members was a bit calm and quiet compared to the other three members.*" P4 mentions that all members "*were calm and so we did not argue hotly.*" This area of *been active* was commented on by half of the participants.

P5 comments on one member who "*had the most good idea to survive and should have persuaded the others more.*" This fell under the heading of *been more persuasive*. Interestingly, three members wrote nothing in response this question. The other responses, however, fell under the heading of *been active* as already mentioned.

5. What other comments do you have about the Desert Survival Situation?

This question allowed participants to comment on anything else that they deemed relevant through participating in the DSS. The dominant theme mentioned fell under the heading of *interesting*. To illustrate, P9 says, "*This activity is very interesting. I hoped to survive until the end.*" In a similar way P8 comments, "*This activity is so fantastic and enjoyable. It was not boring and we found a solution to survive in the desert.*" P6 comments on what was *interesting* as follows: "*It was very interesting to work as a group. To survive, we need a good teamwork and I'm glad to have interesting teammates.*" A number of other participants had similar comments that showed their interest in the activity.

Other themes emerged as well. For example, under *confidence*, P1 says, "*I need to be confident on my opinion. When you want to be persuasive you have to be confident.*" Under *content*, P7 says, "*I believed until the end that the rescue troops would make a point to come.*" Comments from other participants on the content within the DSS were sparse, however. Most of the comments were instead on the process of interacting and logically thinking about solving the situation at hand. Under *respect* and *flexibility* P5 mentions, "*To share opinions through good discussion is very important. We should respect each other's opinion even if they're different from my idea. Being flexible is sometimes essential.*" Under *life connections* P11 says, "*In my daily life, I sometimes feel I make wrong decisions.*

I think I should think logically and make right decisions from this activity." Other themes that emerged included *cooperation*, *negotiation*, and *repeat activity*, which was expressed by P2 as follows: "*I wish I had a chance to do this survival game with non-Japanese, Some people from overseas aggressively speak their opinions. That would be another desert!*" A wide variety of themes were coded for the responses to this open-ended question.

Discussion and conclusions

As seen through the quantitative and qualitative results from the eight closed-ended items and the five open-ended questions in this study, participants favorably rated their own and each other's interpersonal skills during group discussion. In addition, interpersonal skills, and their sub-categories in particular, were mostly seen to be enhancing factors during group performance when building consensus during the DSS.

The current study was successful in enabling the participants to assess the value of their own contributions to their groups. This had been seen in earlier research (Hodder, 2001) to be problematic. Participants in the present study, however, were able to successfully focus on the sub-categories of the interpersonal skills that were self-assessed and other-assessed on the closed-ended items of the survey. They were also able to successfully reflect on their experience on areas that formed the foundation of the original desert survival activity (Lafferty & Eady, 1974) including teamwork, participative decision making, and synergy.

With respect to the DSS scoring results, in each case the team score was better than the average individual score which shows that synergy was achieved by each group. In each case, except for one student whose individual score equaled the team score at 40, all team scores improved relative to the individual scores of participating members. This ability to form consensus and achieve synergy was also demonstrated in their greater team score results relative to individual score results on the DSS. It is interesting to note that based on historical results of 802 teams (HIS, 2013) that the average team score is 54.3. In the present study, team one at 50 and team three at 40 both outscored the average. The average historical individual score is 63.2, which was also outscored by team one at 55.8 and team three at 51.0. Thus, it can be said that the participants in this study were above average as were the groups within which they participated. In no small part were

these results achieved by the participant's ability to form consensus through their synergy and strong interpersonal skills.

From the participant's closed-ended survey item scores and open-ended feedback it is clear that their interpersonal skills were a strong factor which allowed for such success. Effectively forming consensus, as these participants did when working in their teams, requires a range of interpersonal skills including: listening, supporting, differing, and participating. From the average score of 3.4, indicated in the survey results section for these self and other-assessed items, it is clear that participants agree that they were interpersonally successful. As there was very little difference in the scores between self-assessment and other-assessment, it can be assumed that the participants achieved synergy within their groups. This was reflected in the narrow gap differences of 0.2 to 0.0 in the pairs of questions within #1～8. Furthermore, all answers fell within the range of "agree" to "strongly agree" which reflects a positive impression of participant's interpersonal skills. Their mostly positive qualitative comments, with respect to their ability to communicate interpersonally in order to successfully form consensus, further substantiates the synergy that was achieved on the DSS. These comments demonstrated their positive interpersonal skills such as sharing opinions, listening, learning from others, disagreeing respectfully with others, supporting each other, and so on. Based on the results of this exploratory research it is clear that interpersonal skills are perceived by participants to mostly enhance group performance.

Future research

The current study investigated the interpersonal skills involved in forming consensus during group discussion within the DSS, although it was admittedly limited in its scope. More research is needed to understand how interpersonal skills can enhance or diminish group performance in discussion. Thus, a more narrowly focused research design will be necessary in order to achieve that aim.

Furthermore, interpersonal skills represent just one portion of the Effective Solutions model (HIS, 2013). Future research could explore the rational skills used by participants in order to determine the ways that they enhance or diminish group performance. Reflections from participants showed that this is an area which they

deem necessary for future development. Offering these same participants the opportunity to participate in another survival situation with a focus on rational skills is one possible research vehicle.

As mentioned, it would also be useful to research participants' abilities across multiple simulations. This could also be explored in order to determine their ability to improve upon their previous performance. In addition, identifying the similarities and differences between the interpersonal and other skills demonstrated by mixtures of cross-cultural groups could be explored. There are a variety of other possibilities that survival simulations could be used for research purposes in the future.

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Appendix

Appendix 1. Items salvage

Item
Flashlight (4 battery size)
Jackknife
Sectional air map of the area
Plastic raincoat (large size)
Magnetic compass
Compress kit with gauze
.45 caliber pistol (loaded)
Parachute (red and white)
Bottle of salt tablets (1000 tablets)
1 quart of water per person
Book entitled, *Edible Animals of the Desert*
Pair of sunglasses per person
2 quarts of 180 proof vodka
1 topcoat per person
Cosmetic mirror

Appendix 2. Desert survival situation survey

Part A: Please circle your answer as follows:

SA=Strongly Agree
A=Agree
D=Disagree
SD=Strongly Disagree

1. I listened carefully to others during the group discussion.

SA A D SD

2. Other members listened carefully during the group discussion.

SA A D SD

3. I supported others by respecting their ideas and viewpoints during the group discussion.

SA A D SD

4. Others were supportive by respecting other ideas and viewpoints during the group discussion.

SA A D SD

5. I disagreed with others respectfully during the group discussion.

SA A D SD

6. Others disagreed respectfully during the group discussion.

SA A D SD

7. I participated equally in the group discussion without dominating.

SA A D SD

8. Others participated equally in the group discussion without dominating.

SA A D SD

Part B:

1) What did you do well during the group discussion?

2) What could you have done better during the group discussion?

3) What did other members do well during the group discussion?

4) What could other members have done better during the group discussion?

5) What other comments do you have about the Desert Survival Situation?

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